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Asset Management and the Quality Equation

As more highway agencies embrace the asset management approach to highway operations, which emphasizes the timely preservation, maintenance, and upgrading of highway assets through cost-effective planning and resource allocation decisions, an important byproduct is an increased emphasis on quality.

"Because of its focus on long range planning, financial analysis, and integration of other engineering management processes such as pavement or bridge management systems, asset management can have a significant effect on improving the quality of a highway system," says Ken Jacoby of the Office of Asset Management at the Federal Highway Administration (FHWA).

Highway agencies are using pavement, bridge, and maintenance management systems, for example, to collect and monitor information on current conditions, forecast future conditions, and determine the best program of highway or bridge investments to pursue over a certain time period. These actions will help agencies to maintain a steady level of performance and quality.

Another tool that provides States with a more effective way to plan projects and prioritize needs is the use of performance-related specifications (PRS), which allow highway agencies to link construction quality to long-term product performance. The PRS are similar to quality assurance specifications, but the acceptance quality characteristics they measure have been determined to be more directly related to product performance. For example, acceptance quality characteristics for pave-

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The Indiana Department of Transportation used performance-related specifications for this paving project on I-465 in Indianapolis.

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ments might include concrete strength, slab thickness, and initial smoothness. A highway agency can choose to implement different levels of PRS, with the most basic level for pavements including such elements as defining the general project information and determining the distress indicator models for pavement performance, such as transverse cracking and pavement smoothness over time. Implementing a higher level might mean performing more nondestructive pavement sampling and testing or more testing on site.

Using PRS and setting the acceptance quality characteristics can help highway agencies determine whether a contractor should receive incentive or disincentive payments for a project, depending on the as-constructed quality of the work. The implementation of PRS, with well-defined quality levels that are understandable to contractors, is expected to lead to improved product performance and a reduction in life-cycle costs. While PRS have generally only been used for pavements up till now, ultimately they could also be applied to structures or other aspects of highway construction.

The many cost analysis and program decisions supported by aspects of asset management have a tremendous impact on quality, but equally important in the quality equation is a skilled workforce. To ensure that highway personnel have adequate training, FHWA has formed a national team that also includes representatives from the American Association of State Highway and Transportation Officials, regional training organizations, and industry to develop core training materials that can be used by States or regional training groups to train and qualify personnel to work on highway construction projects.

For more information on using asset management tools to achieve continuous quality improvements in highway management, contact Ken Jacoby at FHWA, 202-366-6503 (fax: 202-366-9981; email: ken.jacoby@fhwa.dot.gov). *